

**Digital Audio Broadcasting Systems)
And Their Impact On Terrestrial) Docket 99-325
Broadcasting Systems)**

**FILED BY:
THE AMHERST ALLIANCE, VIRGINIA CENTER
FOR THE PUBLIC PRESS AND 37 OTHER PARTIES
TO THE OCTOBER 25, 2002 PETITION FOR RECONSIDERATION**

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This Supplemental Reply To Oppositions is being submitted by THE AMHERST ALLIANCE, VIRGINIA CENTER FOR THE PUBLIC PRESS and 37 other parties to the October 25, 2002 Petition For Reconsideration in this Docket. The coalition of Petitioners includes broadcast engineers, an OFDM-oriented electrical engineer, full power stations (both commercial and non-commercial), Low Power FM stations, Part 15 stations, aspiring Low Power Radio licensees (both FM and AM), advocacy groups and concerned citizens.

We know that this Supplemental Reply To Oppositions is not being timely filed. However, we move for acceptance of this untimely filing on the grounds that it contains new information, which was not known to us until the last few days.

**Concerns About IBOC Interference
Expressed By
THE NATIONAL TRANSLATOR ASSOCIATION**

In the 5 months since our Petition For Reconsideration was filed in this Docket on October 25, there has been a rising tide of publicly expressed concerns about -- and actual reports of -- interference from In Band On Channel (IBOC) Digital Radio broadcasts. Most of these concerns and reports can be attributed to *independent* observers, who are *not* parties to our Petition.

Our decision to file this Supplemental Reply To Oppositions has been motivated, in substantial part, by the desire to bring before the Commission the latest expression of concern by a credible independent party: in this case, THE NATIONAL TRANSLATOR ASSOCIATION.

In Written Comments that were filed by The National Translator Association in Docket RM-10609, which concerns the FCC's rules governing FM translators, NTA describes itself as an organization composed of "owners and operators of FM translators, including local governments and special tax districts, service organizations and others concerned with the Association's objectives".

On page 2 of those Written Comments, NTA makes the following statement regarding the impact of IBOC Digital Radio on FM translators:

... the adoption of *digital FM radio*, which has signal components in both adjacent channels, *raises serious questions about how FM translators are going to continue to fulfill their function*. It is time to examine how FM translators will avoid interference with digital FM stations, as well as how they will cope with rebroadcasting digital signals. *There is a serious question about how a significant portion of the current FM translators will be able to remain in operation with digital FM stations using three times the spectrum per station.* [Emphasis supplied.]

The Written Comments in question were filed by NTA on February 12, 2003. However, we did not become aware of these Written Comments until March 19, 2003. We have brought them to the Commission's attention as quickly as we could, given the need to first conduct a "multi-logue" among the 39 different parties to the October 25 Petition For Reconsideration.

This statement by NTA is significant, in and of itself, as an expression of concern by a major segment of the broadcasting community. It is *also* significant, however, as an expression of concern about IBOC interference on the *FM* Band, thereby countering any misimpression that problems are limited to the AM Band.

Impact Of Rising Concerns About IBOC Interference

NTA's statement is another straw in a wind whose intensity is mounting.

The pattern of rising concerns about IBOC interference is unmistakable.

Compare the number and diversity of parties on our October 25 Petition For Reconsideration with the number and diversity of parties who have expressed concerns about IBOC -- in *this* Docket, in Docket RM-10609 and in PRM03MB -- *since* October 25:

PARTIES EXPRESSING SERIOUS CONCERNS ABOUT INTERFERENCE FROM IBOC BROADCASTS, OCTOBER 25, 2002 – MARCH 21, 2003

	<u>INITIAL OCTOBER 25 PETITIONERS</u>	<u>ON RECORD AFTER OCTOBER 25</u>	<u>TOTAL</u>
Broadcast Engineers	2	6	8
Electrical Engineers	-	1	1
Trade Associations	-	1	1
Full Power Commercial Stations	1	7	8
Full Power Non-Commercial Educational Stations	2	-	2
LPFM Licensees	3	-	3
Aspiring LPFM/AM Licensees:			
Part 15 Stations	4	1	5
Others	8	2	10
Advocacy Groups	5	-	5
Concerned Citizens	11	8	19

The impact of this trend on our case for Reconsideration is threefold:

(1) Additional substantive evidence that IBOC interference is a problem.

The most obvious impact on our case is the increase in the previously offered evidence of interference. The greater the number and variety of the parties expressing concerns about IBOC interference, the broader and deeper the problem would appear to be.

We also add that these concerns about IBOC interference, while largely hypothetical before “interim” IBOC broadcasts began, are now being documented with reports of actual interference in “the real world”. Numerous reports, by numerous different parties (including some broadcast engineers), are already On The Record in this Docket.

(2) Additional evidence undercutting the Commission’s assertion that “the broadcasting community” is uniformly favorable to IBOC. Initially, the sponsors of iBiquity/IBOC technology contended that it was needed to meet the general public’s “demand” for Digital Radio. When challenged to provide credible evidence of such a “demand” for Digital Radio among the general public, IBOC supporters basically responded that the general public, once introduced to iBiquity/IBOC Digital Radio, would learn to like it better than Analog Radio. Then hundreds of “grassroots” radio listeners filed individual Written Comments in this Docket, stating that they preferred Analog Radio’s diversity over the iBiquity/IBOC technology’s supposed audio quality, while virtually no rank-and-file listeners weighed in on the other side.

At that point, iBiquity/IBOC supporters started talking about the “uniformity of opinion within the broadcasting community”. The FCC echoed this assertion as part of the intellectual foundation for its approval of IBOC broadcasts.

Now, of course, the Petitioners can point to 8 broadcast engineers, 1 electrical engineer (with OFDM expertise), 8 full power commercial stations, 2 full power Non-Commercial Educational stations and 1 entire broadcasting industry trade association who are, in effect, asking:

What “uniformity of opinion within the broadcasting community”?

They are joined by 3 Low Power FM licensees and 15 aspiring Low Power Radio licensees (both FM and AM), 5 of whom are already Part 15 broadcasters.

(3) Evidence that delay in addressing IBOC will only make the Commission’s job more difficult. On October 25, 2002, the parties to our Petition For Reconsideration were the only voices calling in public for revocation or suspension of the October 11 IBOC approval Order. Some *subsurface* opposition, *within* radio broadcasting companies, was present, especially among the engineering staff. In addition, some parties besides ourselves, such as KINGS BAY RADIO of Georgia, had opposed IBOC On The Record *before* it was adopted. *After* October 11, the October 25 Petitioners launched the only publicly visible challenge to IBOC.

We stood, for a time, alone.

Standing alone, we were acutely aware that our only recourse, in the event our Petition was denied or ignored, would be approaching the D. C. Circuit Court for an injunction, pending resolution of relevant, material and unaddressed issues.

Our will to pursue such an injunction, if necessary, was -- and is -- intense and enduring, particularly since neither the NAB or iBiquity have demonstrated any inclination whatsoever to attempt negotiation of our differences. However, mobilizing the financial resources for launching and maintaining such a court challenge, even with donated legal labor from the parties' attorney, is a formidable task for our coalition.

Now that the cavalry has begun to arrive, however, we no longer bear the sole burden of challenging IBOC.

Procedurally, standing behind us in line is the Petition For Rulemaking by Leonard Kahn, P.E. of Kahn Communications in New York City, which includes a call for a stay of the Commission's IBOC approval Order. Even if *we* choose not to go to court in the aftermath of an official or functional denial of our Petition, the Kahn Petition, currently lodged in PRM03MB, represents a *second* opportunity to raise the very same issues before the Commission all over again. When and if our Petition in Docket 99-325 is denied by the Commission, *or else* ignored for so long that we can persuade a court to view the delay as an indirect denial, we will be free to join forces with Mr. Kahn, his friends and other parties to place behind Mr. Kahn's Petition the broadest, most powerful anti-IBOC coalition to date.

In short: "You ain't seen nothin' yet."

In terms of resources, financial *and* logistical *and* political, the IBOC battlefield is now beginning to attract anti-IBOC combatants with worldly resources far greater than those of the October 25 Petitioners.

Within the past 6 weeks alone, we have seen the ranks of vocal IBOC critics swelled by 7 full power *commercial* radio stations and The National Translator Association. Thus, the battle over IBOC is now starting to involve parties who have “deep pockets”, at least compared to our coalition of broadcast engineers, current and aspiring small broadcasters, citizens’ advocacy groups and concerned citizens.

As IBOC transmitters become more common, and incidents of serious IBOC interference become more numerous as a result, who will be next to express in public their concerns about IBOC? Will it be WOWO of Fort Wayne, whose “blowtorch” status has failed to protect it from IBOC interference? Will NATIONAL PUBLIC RADIO, which is already looking for ways to “fix” IBOC through its “Tomorrow Radio” program, finally decide that “enough is enough”? Will a single State’s chapter of the National Association of Broadcasters finally break ranks with the national organization over IBOC, setting the stage for other State chapters to follow?

Who knows? The point is: Dissatisfaction with IBOC has been rising, even *well within* “the broadcasting community”, and seems likely to rise even further. The evidence is mounting that the Commission, in its rush to accommodate the large broadcasters’ rush to implement IBOC, has “bought a pig in a poke”. The FCC has approved “interim” use of a technology which will have to be replaced, or at least substantially overhauled, sooner or later.

We vote for “sooner”.

Obviously, a vote for “sooner” is in the Petitioners’ interest, since we are a coalition of broadcasters, aspiring broadcasters and citizens who oppose IBOC, and indeed any force which reduces the range of choices on the radio dial. *However*, a vote for “sooner” is in *the Commission’s interest* as well.

If, as the Petitioners believe, eventual Commission action to replace or overhaul the iBiquity/IBOC technology is inevitable, *when* is the best time for the Commission to begin this work?

Now, when relatively few IBOC transmitters are in place and there is relatively little damage to remediate -- or *later*, when many more IBOC transmitters, requiring eventual replacement or overhaul, will have been sold and put in place, and some adversely affected stations will have lost market share, perhaps irretrievably, or even slipped into bankruptcy?

Now, when remedial action can still be taken within the context of Docket 99-325 -- or *later*, after the Commission and its staff have had to fight entirely new battles, over the same unaddressed issues, in the D.C. Circuit Court, and/or in the halls of Congress, and/or in a new round of Commission proceedings triggered by the call for IBOC suspension in the Kahn Petition?

Now, when the Commission can address the problems solely on its own terms -- or *later*, when the terms of the remedy may be dictated by a court order and/or an Act of Congress?

The Petitioners of October 25 may not be the ones to finish the battle over IBOC, but we have *started* the battle and others, with more worldly power than we, have joined it. Denying or ignoring our Petition will not make the battle go away.

Possible Improvability Of IBOC Technology

In its Opposition to our Petition For Reconsideration, the NAB took us to task for opposing the iBiquity/IBOC technology instead of offering constructive suggestions for “better digital radio”. In our Reply To Oppositions, we chose to interpret this criticism by the NAB as an indirect call for help -- in the form of positive recommendations regarding how Digital Radio might be improved.

The October 25 Petitioners were already On The Record as having asserted that “better digital radio” might be attainable through comprehensive testing, evaluation and possible implementation of Digital Radio alternatives to the iBiquity/IBOC technology. In response to the NAB’s challenge, however, we initiated intensive internal discussions of whether any improvements could be made *within the context* of the iBiquity version of IBOC broadcasting technology. Included in these discussions were the 3 broadcasting engineers who are parties to our Petition, as well as 2 other broadcasting engineers who oppose IBOC.

(1) “*Damage Mitigation*”. By the time we filed the Reply To Oppositions, we had identified only one sure way to improve the current situation. We recommended establishing Primary Service Status for LPFM stations, and future

LPAM stations, thereby allowing them a modicum of “protected service contours” *and* a legal basis for seeking relief from radio interference within these contours.

We considered this proposed policy to be necessary, but not sufficient, for improving the situation created by implementation of iBiquity/IBOC technology.

For one thing, our proposed policy would help *only* the current and aspiring Low Power Radio broadcasters within our ranks, leaving the others in our coalition -- full power broadcasters, Part 15 broadcasters and listeners seeking more choices on the radio dial -- without any additional protection from IBOC interference.

For another thing, even the current and aspiring Low Power Radio broadcasters might not be helped enough. Their legal rights to protect their service contours from radio interference would rise from nothing to something, but this would only bring them to parity with full power stations -- whose own protection from IBOC interference is currently *better*, but still not necessarily enough to keep all of them On The Air.

Since we filed our Reply To Oppositions, the parties to the October 25 Petition For Reconsideration have continued discussions on possible ways to improve the iBiquity/IBOC Digital Radio technology.

Unfortunately, however, we have so far come up with only one additional “damage mitigation” recommendation -- and this new recommendation, like the first one, would help *only* the current and aspiring Low Power Radio broadcasters.

Specifically:

In addition to establishing Primary Service Status for LPFM stations and future LPAM stations, *or* establishing some alternative mechanisms through which such stations can seek relief when and if their protected service contours are violated, the FCC should consider increasing significantly the wattage levels which are currently permitted for Low Power FM stations.

The current power ceilings for LPFM stations -- 11-100 watts for LP-100 stations and 1-10 watts for LP-10 stations -- fall within the range of a consensus reached by most Low Power FM advocates, as expressed in the many documents they filed in Docket 99-25. However, the FCC's deliberations on LPFM, in Docket 99-25, pre-dated the FCC's deliberations on IBOC, in Docket 99-325. Therefore, the current power ceilings, as considered by the Commission in 1999, and selected by the Commission in January of 2000, were calculated *without* taking into account the possible IBOC-induced expansions of the bandwidths of competing full power stations.

In order to preserve, in the face of IBOC interference, the service areas that the Commission originally envisioned for Low Power FM stations, it may be necessary to increase the wattage levels to a point that will compensate for the erosion of the original service area by IBOC interference.

By logical extension, the wattage levels for future Low Power AM stations should also be calculated in a way which adjusts them for IBOC interference.

As an alternative to increased power levels, the Commission could consider the option of increased height limits for LPFM and LPAM antennae. We believe increased power levels would be the more helpful option for most LPFM and LPAM stations. We say this because many LPFM and LPAM stations are, or will be, home-based -- which could make them subject to restrictions on antenna characteristics, imposed by local zoning boards and/or homeowners' associations, that are typically more stringent than the legal restrictions placed on the antennae of full power stations.

(2) *Possible Improvements In iBiquity/IBOC Technology.* The two regulatory changes we have now recommended are worth adopting as *damage mitigation* measures. Still, because the recommended policy changes are *only* helpful to LPFM stations, and to future LPAM stations, they are no substitute for improvements in the iBiquity/IBOC *technology*.

As we noted in our original Reply To Oppositions, *some* of the parties to our Petition maintain that the iBiquity/IBOC Digital Radio technology could be improved by: (a) integrating Software Defined Radio technology; and/or (b) prioritizing audio stream transmissions over data stream transmissions, instead of the other way around. However, *other* parties to our Petition question the feasibility of such changes and/or assert that they might reduce interference from FM IBOC but would not materially reduce interference from AM IBOC.

With respect to AM IBOC, one of the broadcasting engineers in our ranks wrote this during one of our cyberspace "multi-logues":

A codec that gives decent music at the rate of 20 kilobits per second would solve the problem [on the AM side], but *that* would take an alchemist.

Unfortunately, then, we have so far been unable to identify any relatively inexpensive, easily implemented changes in the iBiquity/IBOC *technology* which would improve the current situation enough to make it survivable for those stations which are seriously endangered -- whether these stations are full power or Low Power or Part 15.

So far as we can tell, we need a different Digital Radio technology.

Alternative Technologies For Digital Radio

In our filings in this Docket, we have written at length about the need for the FCC to engage in *comparative, competitive* testing and evaluation of *all* viable Digital Radio technologies before *any* single Digital Radio technology is selected by the Commission for implementation.

Following recent internal discussions among the 39 parties to the October 25 Petition For Reconsideration, we have decided that we should make two new, but related, points:

1. We have spoken favorably of Eureka-147 Digital Radio technology, and consider it, based on what we know so far, to be generally superior to the iBiquity/IBOC technology. *However*, this assessment does *not* mean we believe the

Eureka-147 technology should be adopted without first undergoing the same kind of comprehensive testing and evaluation that we have recommended for the iBiquity/IBOC technology. *Nor* does it mean we believe the Eureka-147 technology is the only alternative to the iBiquity/IBOC technology that should be tested, evaluated and considered for implementation by the Commission.

2. *Specifically:*

We also recommend the careful consideration, including comprehensive testing and evaluation, of the Digital Radio Mondiale technology. In fact, several parties to the October 25 Petition For Reconsideration have indicated they consider Digital Radio Mondiale technology to be superior to Eureka-147 technology.

We stress that our specific references to the Eureka-147 technology, *and* to the Digital Radio Mondiale technology, should *not* be construed as recommending the exclusion from consideration of any *newer* Digital Radio technology which might be available and viable.

Relevance Of EMP And EMR

In reflecting further upon the Oppositions filed by the NAB and iBiquity, and upon our subsequent Reply To Oppositions, it occurs to us that we might have over-estimated the clarity of the reasoning behind our citation of certain pending proceedings as relevant and material. We had considered the relevance and materiality of these proceedings to be obvious, but perhaps we assumed too much.

Therefore, we will take this opportunity to explain, briefly, our reasoning.

The relevance and materiality of the unanswered Request for an Environmental Impact Statement on IBOC implementation -- including not just an assessment of possible tower construction but also an assessment of the environmental impact from *solid waste* generated by rendering 520 million Analog Radios prematurely obsolete, as well as additional *pollution from manufacturing* their replacements -- speaks for itself, and is in any case buttressed by the statutory mandates of the National Environmental Policy Act of 1969.

The relevance and materiality of accelerating Congressional interest in enacting legislation for a national “Amber Alert” system, dependent in large part on AM highway radios subject to IBOC interference, is also clear on its face.

However, we have concluded it might be useful for us to explain why the *following* incomplete proceedings are particularly relevant and material in the context of Docket 99-325:

1. **DOCKET NUMBER:** RM-10330. **SUBJECT:** *Petition For Rulemaking To Mandate Shielding Of Vital Civilian Electronics Equipment Against The Possible Hostile Use Of An Electromagnetic Pulse (EMP).*
PROCEEDING INITIATED: September 25, 2001. **BY:** Don Schellhardt [Connecticut] and Nickolaus Leggett [Virginia]. **MARCH 24, 2003 STATUS:** *Petition Denied by FCC Staff on May 24, 2002 (in letter postmarked June 3, 2002) , following opportunities for public comments. Petition For Reconsideration, seeking review by the full Commission, filed by Petitioners on June 24, 2002. NO COMMISSION ACTION YET on Petition For Reconsideration. Petition For Reconsideration not yet Granted, Denied or reviewed by the full Commission.*

2. **DOCKET NUMBER:** *Never Docketed by the Commission for public comments. Placed in Commission's "holding tank" of PRM01ET.* **SUBJECT:** *Petition For Notice Of Inquiry To Investigate Potentially Health-Threatening Emissions Of Electromagnetic Radiation (EMR) From Certain Communications Equipment.* **PROCEEDING INITIATED:** *September 25, 2001.* **BY:** *EMR NETWORK [Vermont].* **MARCH 24, 2003 STATUS:** *Petition For Notice Of Inquiry denied by FCC staff on December 11, 2001. Petition For Reconsideration, seeking review by the full Commission, subsequently filed by Petitioner, but for some reason not recorded on the FCC's Electronic Comment Filing System (ECFS). NO COMMISSION ACTION YET on Petition For Reconsideration. Petition For Reconsideration not yet Granted, Denied or reviewed by the full Commission.*

Our basic reasoning, when we cited these incomplete proceedings in our October 25 Petition, was *not* that IBOC Digital Radio equipment is markedly more vulnerable to damage from a possible Electromagnetic Pulse (whether man-made or natural) than Analog Radio equipment. Nor was it our reasoning that IBOC Digital Radio equipment emits more potentially harmful Electromagnetic Radiation than Analog Radio equipment (although an Environmental Impact Statement, as requested last summer by several parties to the Petition For Reconsideration, could have, and should have, explored this point).

In short: It was *not* our reasoning that IBOC Digital Radio equipment is necessarily worse than Analog Radio equipment in *either* of these respects.

Our reasoning, rather, was that *Analog Radio itself* may not be acceptable in one or both of these respects. After all, 2 separate proceedings have been initiated by concerned parties, asserting that the current performance of *Analog Radio* is not reliable enough in the face of possible Electromagnetic Pulse terrorism ... *or* safe enough in light of what we know about the effects of Electromagnetic

Radiation on human and animal health. Why, then, we wondered, should the Analog Radio status quo be the baseline against which the performance of IBOC Digital Radio is measured? Why shouldn't the baseline for comparison, at least in these 2 highly controversial areas, be where Analog Radio *should be* -- which is not necessarily where it *is*?

Of course, we can't know where Analog Radio *should be* until we have investigated, and resolved one way or the other, the 2 cited, pending complaints about where it *is*. Should civilian radio equipment should be shielded to protect it against an Electromagnetic Pulse attack by terrorists? Should radio equipment also be shielded, and/or isolated, to prevent unhealthy human and animal exposures to Electromagnetic Radiation emissions *from* the equipment?

The Commission should know the answers to these questions *before* it misses the opportunity to oversee design, production and installation of a new generation of radio equipment that could, *potentially*, avoid the reported problems.

First, however, the Commission needs to face the questions that have been raised. How can the Commission address these questions when it has not yet considered, let alone decided, whether or not the FCC staff was justified in dismissing the RM-10330 Petition For Rulemaking on shielding of vital civilian electronics equipment against an Electromagnetic Pulse ... *or* whether the FCC staff was justified in failing to even Docket for public comment a Petition For Notice Of Inquiry on potentially health-threatening Electromagnetic Radiation emissions?

To put the same point another way:

Retrofitting of equipment is, almost always, much less expensive than designing the equipment to be the way you want it in the first place. *If*, therefore, the Commission plans to replace existing Analog Radio equipment with new Digital Radio equipment, doesn't it make economic sense -- not to mention common sense -- to consider requiring that such equipment should be designed and manufactured *from the start* to resist Electromagnetic Pulse emissions from the outside and contain Electromagnetic Radiation emissions from the inside? Does it *really* make sense, economic or otherwise, to proceed with IBOC implementation while leaving unresolved the questions of whether EMP shielding and/or EMR reductions are, or may someday be, necessary? Is it *truly* a prudent course for the Commission to leave these questions hanging -- thereby running the risk of having to impose massive retrofitting requirements, with associated massive costs, in the future? Would it not be more sensible to take the time *now* -- through completion of the 2 cited proceedings -- to determine whether the next generation of radio equipment should be designed and manufactured *from the start* to avoid one or both of the reported problems?

We had thought that these concerns, and with them our rationale for raising the 2 incomplete proceedings in question, would be clear on their face.

Obviously, judging by the statements of the NAB and iBiquity, we were wrong.

We thank the Commission for allowing us the opportunity to explain our reasoning more clearly.

Of course, in addition to these essentially pragmatic arguments, we also reiterate by reference all of the *previous* arguments, such as Constitutional and Administrative Procedure Act considerations of “due process” and “arbitrary and capricious” decision-making, which we have raised in asserting that the FCC’s decision to approve IBOC was made too hastily for its own good.

Conclusions

For the reasons set forth herein, the 39 parties to the October 25, 2002 Petition For Reconsideration again urge the Federal Communications Commission to grant this Petition. As requested in the Petition, the Commission should revoke or suspend the October 11, 2002 Order approving “interim” broadcasts with IBOC Digital Radio technology, at least until such time as the unaddressed issues raised by the Petitioners have been addressed and resolved by the Commission.

Respectfully submitted,

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Dated: _____
March 24, 2003

I hereby certify that copies of this Supplemental Reply To Oppositions are being sent to:

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March 24, 2003